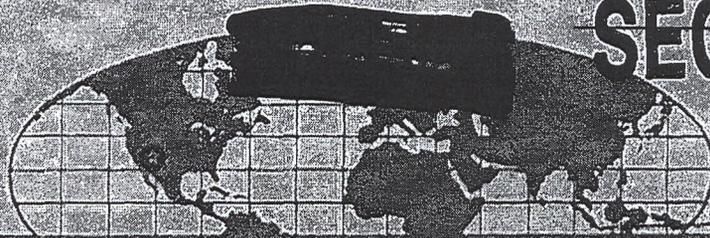


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E.O. 13526, SECTION 5.3(b)(3)

ISCAP APPEAL NO. 2009-068, document no. 78  
DECLASSIFICATION DATE: December 5, 2014



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**NORTH AMERICAN AIR DEFENSE COMMAND**

**W O R**

4410.6007-214

**WEEKLY INTELLIGENCE REVIEW (WIR)  
PRIVILEGED INFORMATION**

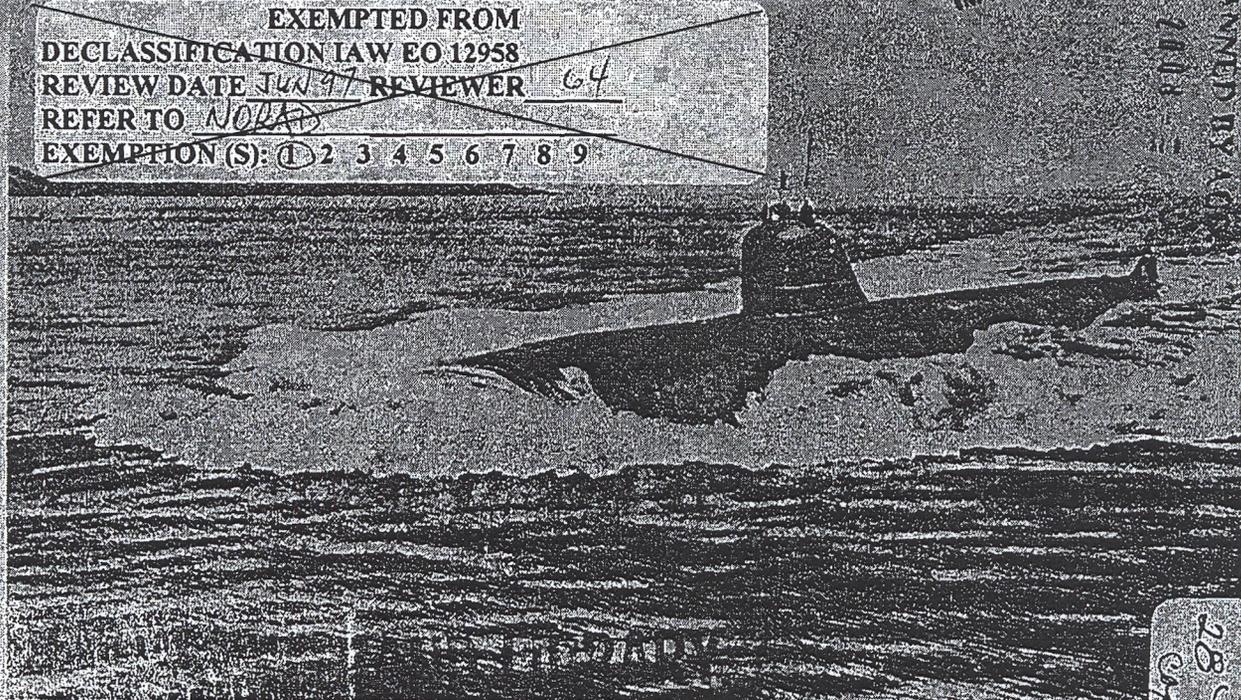
SEE INSIDE COVER FOR SAFEGUARDING GUIDE

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REVIEW DATE JUN 97 REVIEWER 64  
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28 May 1965

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Weekly  
Intelligence  
Review

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MAY 12 1965

K440.602-214

Issue No. 22/65, 28 May 1965

## The WIR in Brief

Portion identified as non-responsive to the appeal

Portion identified as non-responsive to the appeal

MISSILE-RANGE FIRING LOG  
For period 3-24 May.

Portion identified as non-responsive to the appeal

### Space

SPACE LISTING AND OVER-ALL SPACE STATUS REPORT

As of 25 May.

GOSMOS 67 A PHOTORECCO SATELLITE: 51-DEGREE ORBIT GIVES MORE DAYLIGHT COVERAGE

Also used Venik stage, indicating use of high-resolution cameras.

HARD LANDING ALONE WOULD NOT EXPLAIN PREMATURE IMPACT OF LUNIK 5

Hard landing would have been only 40 seconds sooner than soft landing, not 5 minutes.

SA-2 SUSTAINER COULD BE USED FOR SOVIET LUNAR SOFT LANDINGS

Would accord with Soviet design philosophy.

COVER: Soviet nuclear-powered submarine (from Red Star) (OFFICIAL USE ONLY) (SECRET: An N-Class boat.)

NOTE: Pages 23, 24, 26, 27, 30, 31, 34, and 35 of this issue are blank.

Portion identified as non-responsive to the appeal

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# Missile Range Firing Log

US radar detected the following space/missile launches during the period 3-24 May 1965:

| <u>Approximate Time &amp; Date of Launch</u> | <u>Launch Vehicle</u> | <u>Launch Site</u> | <u>Range</u> |
|--|-----------------------|--------------------|--------------|
| 0850Z, 07 May                                | Cosmos 66*            | Tyuratam           | Orbital      |
| 0750Z, 09 May                                | Lunik 5#              | Tyuratam           | Lunar        |
| 1224Z, 12 May                                | SS-4 MRBM             | Kapustin Yar       | 1050 n. m.   |
| 0522Z, 18 May                                | SS-9 ICBM             | Tyuratam           | 3400 n. m.   |
| 0637Z, 22 May                                | SS-7 ICBM             | Tyuratam           | 3400 n. m.   |

\*Launched by SS-6 ICBM booster-sustainer, injected into orbit by light Lunik upper stage.

#Launched by SS-6 ICBM booster-sustainer, injected into parking orbit by heavy Venik upper stage, reinjected into transfer trajectory to the Moon by the Soviets' 4th interplanetary stage.

(Diyarbakir & Shemya RADINT)

(~~SECRET~~ NO FOREIGN DISSEMINATION -- Releasable to US, UK & Canada)

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space

significant  
intelligence  
on space  
developments  
and trends

### Space Listing and Over-All Space Status Report

The over-all space vehicle status as of 1000Z, 25 May 1965, was as follows:

|                                   | <u>US</u>  | <u>UK</u> | <u>Canada</u> | <u>Italy</u> | <u>USSR</u> | <u>Total</u> |
|-----------------------------------|------------|-----------|---------------|--------------|-------------|--------------|
| Earth-orbiting payloads           | 135        | 2         | 1             | 1            | 22          | 161          |
| Sun-orbiting payloads             | 7          |           |               |              | 6           | 13           |
| Moon-impacted payloads            | 5          |           |               |              | 2           | 7            |
| Earth-orbiting debris             | 367        | 1         | 2             |              | 45          | 415          |
| Sun-orbiting debris               | 8          |           |               |              |             | 8            |
|                                   | <u>522</u> | <u>3</u>  | <u>3</u>      | <u>1</u>     | <u>75</u>   | <u>604</u>   |
| Payloads decayed or<br>de-orbited | 148        |           |               |              | 78          | 226          |
| Debris pieces decayed             | 101        |           |               |              | 456         | 557          |
|                                   | <u>771</u> | <u>3</u>  | <u>3</u>      | <u>1</u>     | <u>609</u>  | <u>1387</u>  |

A listing of Soviet payloads and their orbital parameters is shown on page 33.

(SPADATS)

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## Cosmos 67 a Photorecce Satellite; 51-Degree Orbit Gives More Daylight Coverage

The Soviets launched their 6th photoreconnaissance satellite of 1965 from Tyuratam at about 1050Z, 25 May. Orbital parameters of the new vehicle, designated Cosmos 67, have been reported as follows:

|             | By SPADATS   | By TASS      |
|-------------|--------------|--------------|
| Inclination | 51.8 degrees | 51.8 degrees |
| Period      | 90.1 minutes | 89.9 minutes |
| Apogee      | 353.9 km     | 350 km       |
|             | 191.1 n.m.   | 189 n.m.     |
| Perigee     | 203.2 km     | 207 km       |
|             | 109.7 n.m.   | 112 n.m.     |

TASS made its usual announcement to the effect that Cosmos 67 is another in a series of vehicles intended to explore near-Earth space and study the Earth's cloud cover. Actual mission of the new vehicle, however, is photoreconnaissance, although equipment for other missions might also be carried. Cosmos 67 will probably be de-orbited about 2 June.

Cosmos 67 is the first Soviet photorecce vehicle to combine a 51-degree orbit with use of the Venik heavy upper stage for injection into orbit. Both features have appeared previously in the Cosmos series vehicles, but never together in one vehicle. They are significant for photography for the following reasons:

- The 51-degree orbit allows the vehicle to spend more than twice the daylight hours over US and southern Canadian targets that is allowed by the usual 65-degree orbit, assuming the same launch time for each category of vehicle.
- The heavy Venik stage is indicative of the use of a high-resolution camera system, one which, it is believed, permits photographing of ground objects 5-8 feet across.

Cosmos 67 is the first 51-degree-orbit Cosmos vehicle to be launched this year; 4 were launched in 1964. The last one, Cosmos 50, failed: though it was launched successfully, it exploded on Revolution 130, apparently during the de-orbit attempt.

(SPADATS; NORAD)

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## Hard Landing Alone Would Not Explain Premature Impact of Lunik 5

The Soviets' most recent lunar probe, Lunik 5, impacted on the Moon some 5 minutes earlier than the Soviets anticipated. An announcement made after completion of a midcourse-guidance maneuver stated that the probe



~~secret~~

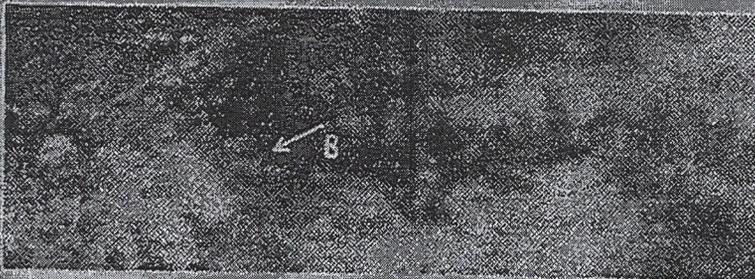
would reach the Moon at about 1915Z, 12 May; a later announcement said that impact occurred at 1910Z. (Actual moment of impact probably was 1909:46Z

Earliness of the landing was initially attributed to probable failure of the retrorockets to slow the probe to a soft landing. (See last week's WIR.) FTD believes, however, that this failure does not adequately explain the 5-minute differential. The difference in time between a hard landing and a soft landing, according to an FTD estimate, would probably be only about 40 seconds.

Soviet misestimation of impact time by more than 4 minutes, therefore, may have stemmed largely from:

- Inadequacies of the Soviet spacetracking system which furnished the positional and velocity data upon which the estimate was based.
- A lack of precision in or malfunction of the midcourse guidance maneuver.

An indication that the braking rockets may have actually ignited, though probably tardily, is seen in an East German news story to the effect that the observatory at Rodewich, East Germany, photographed a dust



cloud 143 miles long and 50 miles wide in the scheduled impact area (the Sea of Clouds) at the time of impact.

Photographs taken at 15-second intervals indicated that the dust cloud had completely disappeared by 1921Z.

(FTD; NORAD; Izvestia)

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## SA-2 Sustainer Could Be Used for Soviet Lunar Soft Landings

Details of the Soviet system for soft-landing instrumented packages on the Moon, the subject of 8 Soviet launches over the past 30 months, are not known. FTD estimates, however, that the Soviets could have developed a propulsion system, suitable for landing a TV transmitter on the Moon, from the sustainer of the Soviets' standard surface-to-air missile, the GUIDELINE/SA-2. Such a development would be in keeping with Soviet design philosophy.





which prefers off-the-shelf equipment of proven reliability to new equipment tailored to the mission. A simple and reliable system, the GUIDELINE sustainer has already been used in the Soviet space program as the retro-rocket for the manned Vostoks and certain of the recoverable Cosmos vehicles.

This sustainer could be incorporated, according to FTD, in a system which would dispense with the necessity for sophisticated on-board computers and rate-measuring devices. The only terminal guidance equipment, other than normal attitude control, would be an on-board radar altimeter which would switch on the retrorocket at a programmed altitude above the Moon's surface.

Assuming a thrust of 6,000 pounds for the SA-2 sustainer and a vehicle weight of 3100 pounds after completion of the midcourse guidance maneuver, the sustainer would be started at an altitude of 62 miles above the Moon's surface and burn for 84 seconds, allowing the spacecraft to arrive at the lunar surface with zero velocity at engine cutoff. However, the retrorockets should not be firing when the vehicle is on or close to the lunar surface, because it would defeat the mission of the probe; it would disturb the surface which the vehicle was designed to investigate.

The Soviets, it is believed, would have an allowable tolerance in ignition altitude of as much as 10,000 feet. This judgment is based on an article in Komsomolskaya Pravda of 4 April 1963 which reported that the Soviets had developed impact-resistant TV transmitters which had withstood free falls without damage from an altitude of 6500 feet. A terrestrial free fall of 6500 feet equates to a free fall of 10,000 feet on the Moon.

The Soviet system would allow for a payload weight of 630 pounds, assuming a vehicle weight of 3100 pounds after completion of midcourse guidance. Propellant weight for retro would be 2040 pounds, dry weight of the propulsion system (including tankage) would be about 430 pounds.

Such a system would not be as sophisticated as that of the US's Surveyor. The main rocket engine of the Surveyor is programmed to switch on at roughly 50 n. m. altitude, burn out at some 35,000 feet, after which vernier engines lower the payload gently to an altitude of 13 feet, at which time vertical velocity should be reduced to less than 15 feet per second. The Surveyor then free falls the last 13 feet.

(FTD)

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Soviet Vehicles in Earth Orbit

| <u>Soviet Designation</u> | <u>Object No.</u> | <u>Date of Launch</u> | <u>Inclination to Equator (degrees)</u> | <u>Period (minutes)</u> | <u>Apogee (Kilometers #)</u> | <u>Perigee (Kilometers #)</u> | <u>Estimated Life Expectancy or Decay Date</u> |
|---------------------------|-------------------|-----------------------|---|-------------------------|------------------------------|-------------------------------|--|
| Cosmos 17                 | 580               | 22 May 63             | 48.94                                   | 89.39                   | 284.25                       | 203.44                        | Jun 1965                                       |
| Polyot 1                  | 683               | 01 Nov 63             | 58.93                                   | 102.28                  | 1,401.50                     | 332.83                        | Over 50 years                                  |
| Electron 1                | 746               | 30 Jan 64             | 60.93                                   | 169.26                  | 7,118.60                     | 398.38                        | Over 50 years                                  |
| Electron 2                | 748               | 30 Jan 64             | 58.74                                   | 1,356.30                | 67,240.00                    | 1,131.20                      | Over 50 years                                  |
| Polyot 2                  | 784               | 12 Apr 64             | 58.07                                   | 91.742                  | 432.69                       | 287.82                        | Over 5 years                                   |
| Electron 3                | 829               | 10 Jul 64             | 59.84                                   | 158.12                  | 7,023.90                     | 401.58                        | Over 50 years                                  |
| Electron 4                | 830               | 10 Jul 64             | 59.50                                   | 1,313.8                 | 65,893.00                    | 823.23                        | Over 50 years                                  |
| Cosmos 41                 | 869               | 22 Aug 64             | 65.95                                   | 714.52                  | 39,549.00                    | 646.16                        | Over 50 years                                  |
| Cosmos 42                 | 864               | 22 Aug 64             | 48.94                                   | 94.73                   | 788.63                       | 221.31                        | Feb 1966                                       |
| Cosmos 43                 | 867               | 22 Aug 64             | 48.95                                   | 94.70                   | 790.06                       | 221.00                        | Jan 1966                                       |
| Cosmos 44                 | 876               | 28 Aug 64             | 65.09                                   | 99.51                   | 876.13                       | 596.05                        | Over 50 years                                  |
| Cosmos 49                 | 913               | 24 Oct 64             | 48.97                                   | 90.56                   | 358.17                       | 245.04                        | Nov 1965                                       |
| Cosmos 51                 | 947               | 09 Dec 64             | 48.75                                   | 91.61                   | 453.20                       | 253.06                        | 4th Qr, 1966                                   |
| Cosmos 53                 | 983               | 30 Jan 65             | 48.72                                   | 97.75                   | 1,082.20                     | 218.55                        | 1967   |
| Cosmos 54                 | 1089              | 21 Feb 65             | 56.08                                   | 104.59                  | 1,690.00                     | 261.42                        | Over 10 years                                  |
| Cosmos 55                 | 1090              | 21 Feb 65             | 56.05                                   | 104.84                  | 1,708.50                     | 265.96                        | Over 10 years                                  |
| Cosmos 56                 | 1091              | 21 Feb 65             | 56.07                                   | 104.04                  | 1,637.80                     | 262.14                        | Over 10 years                                  |
| Cosmos 58                 | 1097              | 26 Feb 65             | 65.02                                   | 96.78                   | 646.43                       | 563.73                        | Over 50 years                                  |
| Cosmos 61                 | 1267              | 15 Mar 65             | 56.02                                   | 104.74                  | 1,699.60                     | 265.78                        | Over 5 years                                   |
| Cosmos 62                 | 1268              | 15 Mar 65             | 56.04                                   | 104.52                  | 1,681.60                     | 262.84                        | Over 5 years                                   |
| Cosmos 63                 | 1269              | 15 Mar 65             | 56.03                                   | 104.00                  | 1,633.50                     | 262.66                        | Over 5 years                                   |
| Molniya 1                 | 1324              | 23 Apr 65             | 65.18                                   | 720.53                  | 39,960.00                    | 531.32                        | Over 50 years                                  |

Soviet Payloads in Space, as of 24 May 1965

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Soviet Space Probes

|         |     |           | <u>Inclination to Ecliptic (degrees)</u> | <u>Period (days)</u>                    | <u>Aphelion (AU*)</u> | <u>Perihelion (AU*)</u> |            |
|---------|-----|-----------|--|---|-----------------------|-------------------------|------------|
| Lunik 1 | 112 | 02 Jan 59 | 00.01                                    | 449.5                                   | 1.315 AU              | .9766 AU                | Indefinite |
| Lunik 2 | 114 | 12 Sep 59 | Not applicable                           | -- impacted on Moon                     |                       |                         | Impacted   |
| Venus 1 | 80  | 12 Feb 61 | 00.58                                    | 300.                                    | 1.019 AU              | .7183 AU                | Indefinite |
| Mars 1  | 450 | 01 Nov 62 | 2.683                                    | 519.1                                   | 1.603 AU              | .9237 AU                | Indefinite |
| Lunik 4 | 566 | 02 Apr 63 | Not computed                             | -- in barycentric or heliocentric orbit |                       |                         | Indefinite |
| Zond 1  | 785 | 02 Apr 64 | Not available                            |   |                       |                         | Indefinite |
| Zond 2  | 945 | 30 Nov 64 |  | 512.                                    | 1.54 AU               | .9840 AU                | Indefinite |

(SPADATS)

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\*1 km equals 0.54 nautical miles or 0.62 statute miles.  
 \*AU = astronomical units. Roughly, 1 AU = 93 million statute miles (mean distance from Sun to Earth).

